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1 [Expert systems for configuration at Digital: XCON and beyond](#)

 Virginia E. Barker, Dennis E. O'Connor, Judith Bachant, Elliot Soloway
 March 1989 **Communications of the ACM**, Volume 32 Issue 3

 Full text available: ☒ [pdf\(2.29 MB\)](#)

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Members of Digital Equipment Corporation's team of expert system experts reflect and recount a decade's worth of lessons learned in designing, and building a core of configuration systems

2 [Expert systems: perils and promise](#)

 D. G. Bobrow, S. Mittal, M. J. Stefik
 September 1986 **Communications of the ACM**, Volume 29 Issue 9

 Full text available: ☒ [pdf\(1.77 MB\)](#)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Based on a review of some actual expert-system projects, guidelines are proposed for choosing appropriate applications and managing the development process.

3 [DFTEXPERT: an expert system for design of testable VLSI circuits](#)

 Sudipta Bhawmik, P. Pal Chaudhuri
 June 1988 **Proceedings of the first international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 1**

 Full text available: ☒ [pdf\(775.77 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

To tackle the current day testing complexity of VLSI circuits Design For Testability (DFT) is becoming more of a necessity. However VLSI designers are yet to accept DFT mainly due to lack of effective tools. Expert Systems technology promises to be an useful means to present to the designer the gamut of DFT knowledge developed so far, primarily by test experts, in a more effective way. DFTEXPERT is an attempt towards this direction. This paper presents the major components of DFTEXPERT and ...

4 [Separating control from structural knowledge in construction expert systems](#)

 Andreas Günter, Roman Cunis, Ingo Syska
 June 1990 **Proceedings of the third international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 2**

 Full text available: ☒ [pdf\(790.08 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In most expert systems for constructional tasks the knowledge base consists of a set of facts or object definitions and a set of rules. These rules contain knowledge about correct or

ideal solutions as well as knowledge on how to control the construction process. In this paper we present an approach that avoids this type of rules and thus the disadvantages caused by them. We propose a static knowledge base consisting of a set of object definitions interconnected by is-a and part- ...

5 Evaluation of an expert system for searching in full text

S. Gauch

December 1989 **Proceedings of the 13th annual international ACM SIGIR conference on Research and development in information retrieval**

Full text available:  [pdf\(1.44 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper presents a prototype expert system which provides online search assistance. The expert system automatically reformulates queries, using an online thesaurus as the source of domain knowledge, and a knowledge base of domain-independent search tactics. The expert system works with a full-text database which requires no syntactic or semantic pre-processing. In addition, the expert system ranks the retrieved passages in decreasing order of probable relevance. Users' search ...

6 Short Papers: An intelligent dialogue for online rule based expert systems

Sascha Mertens, Marius Rosu, Yuliadi Erdani

January 2004 **Proceedings of the 9th international conference on Intelligent user interface**

Full text available:  [pdf\(308.69 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper describes a concept for creating free configurable, intelligent behaving web dialogues for rule based expert systems. Free configurable is meant to indicate, that the dialogue module developed with this concept is domain independent and being configurable without needing means of programming. Intelligent means that it in spite of this independency, it can behave in accordance to the expert system's knowledge and the received user inputs.

Keywords: dynamic web interface, expert systems, intelligent dialogue, rule based systems

7 Process design of oil and gas production facilities using expert systems

Hafez Aghili, George Montgomery, Al Amlani, Jatin Shah

June 1988 **Proceedings of the first international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 1**

Full text available:  [pdf\(754.72 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [index terms](#)

An expert system known as the Automated Project Design System (APDS™) has been developed to assist process and facilities engineers in performing preliminary feasibility studies, optimization studies, and provide the basic information required for the initiation of the detailed design for offshore oil and gas production facilities. Given the feedstock and product specifications, the expert system produces a preliminary process flow diagram showing all major pieces of equipment....

8 PVDaCS: a prototype knowledge-based expert system for certification of spacecraft data

Cathleen Wharton, Patricia J. Shiroma, Karen E. Simmons

June 1989 **Proceedings of the second international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 1**

Full text available:  [pdf\(488.47 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

On line data management techniques to certify spacecraft information are mandated by increasing telemetry rates [SiC87]. Knowledge-based expert systems offer the ability to certify data electronically without the need for time consuming human interaction. We have

explored issues of automatic certification by designing a knowledge-based expert system to certify data from a scientific instrument, the Orbiter Ultraviolet Spectrometer (OUVS), on an operating NASA planetary spacecraft, Pioneer V ...

9 Expert systems and information retrieval

Gerard Salton

April 1997 **ACM SIGIR Forum**, Volume 31 Issue 1

Full text available:  [pdf\(310.61 KB\)](#) Additional Information: [full citation](#), [index terms](#)

10 Plant control expert system coping with unforeseen events—model based reasoning using fuzzy qualitative reasoning

J. Suzuki, N. Sueda, Y. Gotoh, A. Kamiya

June 1990 **Proceedings of the third international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 1**

Full text available:  [pdf\(856.86 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

An ordinary expert system controls a plant according to heuristics. So, it fails to control the plant for lack of heuristics if unforeseen events occur as a result of abnormal situations. We propose a new framework of model-based reasoning that can dynamically generate the knowledge for plant control against unforeseen events. This proposed framework consists of three functions: (a) generation of the goal state after recovery from the unforeseen events; (b) generation of knowledge f ...

11 A management system for a PACS network in a hospital environment

Viviane Jonckers, B. Criel

June 1990 **Proceedings of the third international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 2**

Full text available:  [pdf\(1.41 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The paper reports on a network management system for a Picture Archiving and Communication System (PACS) in a hospital environment. The size of a typical data transfer in this environment is several orders of magnitude larger than a typical data transfer in a local area computer network. To ensure reasonable response times to the system's users, it is necessary to sequentialise the image traffic on the PACS network. Knowledge about patient flow, radiologist flow, and image flow which is ava ...

12 Predicting expert system success: an expert system for expert systems

Il-Yeol Song, Joseph LaGue

September 1990 **Proceedings of the 1990 ACM SIGBDP conference on Trends and directions in expert systems**

Full text available:  [pdf\(1.78 MB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

13 Approximate modelling of cognitive activity: towards an expert system design aid

Phil Barnard, Michael Wilson, Allan MacLean

May 1986 **ACM SIGCHI Bulletin, Proceedings of the SIGCHI/GI conference on Human factors in computing systems and graphics interface**, Volume 17 Issue SI

Full text available:  [pdf\(552.40 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Constructs from theoretical psychology can be used to decompose the representational and processing resources of cognition. The decomposition supports "cognitive task analysis" through which user performance can be related to the functioning of resources. Such functional relationships have been formalised and embodied in an expert system. This builds approximate models which describe cognitive activity associated with the execution

of dialogue tasks. Attributes of these "c ...

14 Consulting without consultants: expert systems applications in user services

E. Johnson, W. Wehrs, T. Delfield, J. Imhoff, V. Manter

October 1989 **Proceedings of the 17th annual ACM SIGUCCS conference on User Services**

Full text available:  pdf(792.51 KB)


Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

One major challenge to User Services personnel is keeping current with new developments in the area they support. Computer technology is in a state of constant change. Staff must not only provide consulting on current products; they must also provide advice on future trends for users eager to remain on the cutting edge of technology. The pace is quickening rather than slowing. Frand et al., in a 1987 survey of university business schools, found that microcomputers, since their introduction ...

15 Automatic model synthesis: using automatic programming and expert systems techniques toward simulation modeling

Karen J. Murray, Sallie V. Sheppard

December 1987 **Proceedings of the 19th conference on Winter simulation**

Full text available:  pdf(1.22 MB)


Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A Knowledge-Based Model Construction (KBMC) system is described which has been developed to automate the model construction phase of the simulation life-cycle. The system utilizes a knowledge-based approach to automatic programming to build a simulation model and extends the knowledge-based approach to include model specification acquisition. The system's underlying rule base, implemented in the production system paradigm of OPS83, incorporates several types of knowledge. Domain knowledge i ...

16 Network management using expert diagnostics

Wayne Fuller

August 1999 **International Journal of Network Management**, Volume 9 Issue 4

Full text available:  pdf(1.45 MB)

Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Networks have become a key component of the corporate infrastructure. Managing the networks, which often carry a diverse set of information & lpar; e.g. voice, data, video & rpar; over a diverse set of media & lpar; e.g. wire, cable, RF & rpar; with a mixture of owned and leased transmission assets that are often geographically distributed and run a diverse set of protocols, is a major challenge. One of the most promising techniques applies expert system approaches to the management of networks. Co ...

17 Late breaking results: short papers: A logic block enabling logic configuration by non-experts in sensor networks

Susan Cotterell, Frank Vahid

April 2005 **CHI '05 extended abstracts on Human factors in computing systems**

Full text available:  pdf(233.00 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Recent years have seen the evolution of networks of tiny low power computing blocks, known as sensor networks. In one class of sensor networks, a non-expert user, who has little or no experience with electronics or programming, selects, connects and/or configures one or more blocks such that the blocks compute a particular Boolean logic function of sensor values. We describe a series of experiments showing that non-expert users have much difficulty with a block based on Boolean logic truth table ...

Keywords: boolean logic, eBlocks, embedded computing systems, sensor networks, truth table

18 Software configuration—an NP-complete problem

Jerry Calabaugh

August 1988 **ACM SIGMIS Database**, Volume 19 Issue 2

Full text available:  [pdf\(657.30 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Configuration Control File (CCF) production is very complex, thousands of code packages, data blocks and parameter values must be linked under many constraints including: *Common data and code less than 8192 bytes *Maximum of 5 registers per task *All systems data must have common capabilities NP-complete problems are commonly known as knapsack or bin packing problems. They have no known algorithm which solves them in a time period bounded by a polynomial function of the number of inputs. Rules-of-...

19 A review of barriers to expert system diffusion

Donald E. Hardaway, Richard P. Willi

September 1990 **Proceedings of the 1990 ACM SIGBDP conference on Trends and directions in expert systems**

Full text available:  [pdf\(1.79 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

20 A knowledge-based water purification plant control system

Yasuyuki Miyajima, Shuichiro Kobayashi, Ryuichi Inaba, Kiichiro Ito

June 1989 **Proceedings of the second international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 1**

Full text available:  [pdf\(482.18 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A knowledge-based control system has been developed and applied to a water purification plant. The objective of the system is to realize an intelligent supervisory control system that is based on the accumulated knowledge of experts. This control system employs a production system as an expert system. "Knowledge" required for operating the plant is represented by IF-THEN rules. In order for such an expert system to operate in real time, an on-line interface and environment are r ...

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